HB 4216
House Labor Committee
March 6, 2007

Submitted by: Phil Schloop, Business Manager IUOE Local 547

Thank you for the opportunity to speak with you today regarding HB 4216. The bill would allow for voluntary registration of boiler operators and stationary engineers. The boiler operators' profession has asked for this legislation so as to provide for uniform registration throughout the state. Presently, boiler inspectors, installers, and repairers are required to be licensed and have a board structure already in place.

The bill is designed to promote safe day-to-day operation, maintenance and energy conservation. The National Board of Boiler and Pressure Vessel Inspectors reports that each year during the 1992 to 2001 reporting period saw at least 2,000 accidents, with a total number of accidents during the 10 year period of 23,338. Of the 23,338 accidents recorded, 83 percent were a direct result of human oversight or lack of knowledge. Human oversight and lack of knowledge were also responsible for 69 percent of the injuries and 60 percent of recorded deaths. There have been many cases where there has been loss of life and property because of inadequately trained boiler operators and stationary engineers, and it is difficult to gauge what other catastrophes may occur in the future due to poorly trained personnel.

HB 4216 establishes five classifications, two for certified boiler operators (low pressure certified boiler operators and high pressure certified boiler operators) and three for certified stationary engineers (first, second and third class). Only first class stationary engineers would not have any limitations on their registrations. The other four classifications would all be limited according to the maximum aggregate of square feet of boiler heating surface operating in a boiler plant or the maximum steam engine-turbine horsepower.

The bill provides for reciprocity with other states and contains "grandparent" provisions for those who submit evidence of the following:

- Five years of experience in the appropriate class of registration
- A license as a boiler operator or stationary engineer from Detroit or Dearborn in the appropriate class
- Successful completion of an approved four year apprenticeship program, a qualified technical education program, or a four year training program

This bill does **not** create a new administrative body. The Board of Boiler Rules was created by the Boiler Act of 1965, which regulates the construction, use and repair of boilers used to generate steam power for power plants. The Board would have the responsibility of establishing the course content and administering the exams. The Board has been in existence for over 30 years and currently administers the exams for the boiler inspectors.

Thank you for your time and consideration. I would be happy to answer any of your questions.

Submitted by: Phil Schloop, Business Manager IUOE Local 547
1-800-253-2316 ext. 30
Iuoe547@iuoelocal547.com

Accident Database: Boilers, Pressure Vessels, and Piping

AIS Accident Inspection Specialists, Inc.

Boiler Accident Database | Pressure Vessel Accident Database | Piping Accident Database

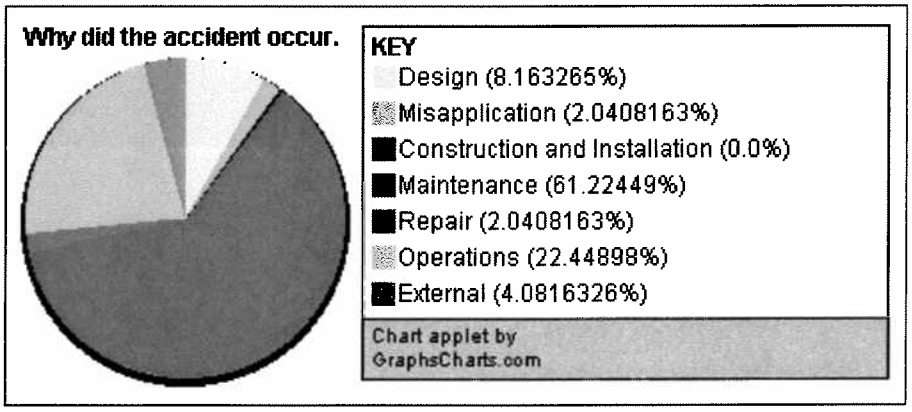
Welcome to the accident database. This is a repository of a boiler accident database, a pressure vessel accident database, and piping accident database. This accident database is searchable. This accident database is maintained at AIS Accident Inspection Specialists, Inc. This boiler accident database and pressure vessel accident database is a repository from a broad range of sources. This accident database is maintained by volunteers, like you, that believe in open reporting of the fact while being respectful of the privacy and confidentially of other parties. The completeness of the information is important.

Select Search Parameters

Country | **State** | **Year** | **Type of Vessel**

Leaving a field blank will select all entries for that field.

Submit Query | Reset



DO YOU HAVE AN ACCIDENT THAT YOU WOULD LIKE TO REPORT?

Accident Reporting Form

This form will insert your data into the accident database for boilers, pressure vessels, and piping.

The goal of the boiler accident database and the pressure vessel database including a repository of a piping accident database is to support safe and knowledgeable use of boilers, pressure vessels, and piping. This is done by identifying the types of type of boilers, pressure vessels, and piping as they relate to the accident. Case [accident] specific data is then generated along with statistical summary information on the submitted factors as they are associated with the incidents or accidents. The users, operators, manufacturers, and owners of the vessels in the community at large can learn about the events and try to prevent such events from reoccurring in their facilities.

Reprinted with Permission by the National Board of Boiler and Pressure Vessel Inspectors, partial excerpt from the National Board Bulletin, Summer 2002

TEN YEARS OF INCIDENT REPORTS UNDERSCORE HUMAN ERROR AS PRIMARY CAUSE OF ACCIDENTS

When the National Board standardized its reporting process for gathering incident statistics in 1991, it was with the objective of creating a accurate and consistent database that would, over time, yield a bona fide method of identifying and correcting the causes of boiler and pressure vessel accidents.

OVERVIEW

Tragically, a total of 127 persons have lost their lives as the result of boiler and pressure vessel accidents during the past ten years. On average, that is just less than 13 fatalities per year. ...When it comes to number of accidents, there is little positive news. Each year during the 1992 to 2001 reporting period saw at least 2,000 accidents, with a total of 23,338 accidents. That averaged 2,334 accidents per year. The highest number of accidents (2,686) occurred in 2000, while the lowest number (2,011) took place in 1998.

HUMAN ERROR

Of the 23,338 accidents recorded over the past ten years, 83 percent were a direct result of human oversight or lack of knowledge (i.e., LOW-WATER CONDITION, IMPROPER INSTALLATION, IMPROPER REPAIR, or OPERATOR ERROR OR POOR MAINTENANCE). Human oversight and lack of knowledge were also responsible for 69 percent of the injuries and 60 percent of recorded deaths.

As anyone who has followed these Incident Reports knows, LOW-WATER CONDITION and OPERATOR ERROR OR POOR MAINTENANCE have stood atop the list of **boiler accident causes** for all ten years (includes power boilers, steam-heating boilers and water-heating boilers)."

Mr. Donald E. Tanner, Executive Director of the National Board of Boiler and Pressure Vessel Inspectors, explained why these statistics are so alarming. "While being able to identify and isolate a problem may not necessarily give us complete comfort, it does provide certainty -- the knowledge of what needs to be corrected....simply put: what we do not know can hurt us. Our lack of understanding or knowledge of the perils of boiler and pressure vessel safety puts everyone at risk. Just ask the 84 people who were reported as sustaining boiler and pressure vessel-related injuries last year... And we must do more to inform the general public -- to insist that everyone who works on and around boilers have the essential knowledge to protect themselves as well as those around them.

Over the past two years, the number of people who have attended boiler and pressure vessel training courses in North America has reached record proportions.... Recently, however, economic events have prompted many companies to reduce their training participation. For our industry and its future, that suggests a less than optimistic picture....Numbers reveal only what was. It is up to you to determine what will be...." Check the National Board website for more information: www.nationalboard.org.

Distributed by Industrial Interactions Inc., 8302 Professional Hill Dr., Fairfax, VA 22031
Phone: 703-573-4500 FAX: 703-641-9853 Email: info@wetrainindustry.com
Website: WeTrainIndustry.com

Boiler and Water Heater Safety:
What Emergency Personnel Should Know

Causes . . . of Water Heater or Boiler Failure.

A recent survey identified the following leading causes of accidents:

1. Failure of the fuel cutoff system when the water level inside the unit becomes too low for proper operation.
2. Operator error, poor maintenance, or improper maintenance.
3. Failure of any primary safety controls including the safety relief valve (which should relieve excess pressure or excessively high temperature of the water supply inside the tank when either condition rises above a safe operating level).
4. The addition of cold water to an extremely overheated water heater or boiler.

If There Is an Accident . . . Call the Jurisdictional Official.

1. Firefighters may very well be the first on the scene.
2. Deal with immediate emergencies first.
3. Prevent further injury.
4. Secure the area by not letting anyone or anything near the accident center.
5. Prevent any disruption of the damage until the local boiler inspector can investigate the accident scene.

Safety Means Caution.

An overheating water heater can quickly be identified by steam or a mixture of steam and water being discharged at the safety relief valve or from an open hot water faucet. If this condition is found at a faucet, close the faucet. In both cases, immediately shut down the water heater's source of heat. Allow the water heater to cool naturally without the addition of excess cold water.
An overheating boiler may exhibit the following conditions:

1. A discharging safety relief valve.
2. Pressure and/or temperature readings above the maximum allowed for the boiler.

3. Low or no water in boilers equipped with water-level gage glasses.

4. Scorched or burning paint on the skin casing.

When a water heater or boiler is overheating, the only safe intervention is to:
Remove the heat source by stopping the supply of fuel or air.

1. Do not try to relieve the pressure.

2. Do not add cool water into the vessel.

3. Do not try to cool the vessel with water.

Let the vessel cool down naturally. Get away from the vessel. Call a qualified repair company and notify the jurisdictional authority .

Prevention Through Inspections.

Most jurisdictions require regular inspections of boilers and pressure vessels in other than residential settings. However, people do not always comply with these regulations.
Typically, insurance companies require regular boiler or pressure vessel inspections before insuring or continuing policies on these units. A certificate indicates that a unit has passed inspection.
When actual or potential problems arise, call the jurisdictional official .
Note the unit identification number on the certificate. This will be needed by the jurisdictional official for locating and identifying the unit.

Safety Checklist*

Exterior shell and/or insulation. Look for indications of overheating.

Leaks. Look for water on the floor. Check for water or steam escaping from any part of a pressurized system including the boiler, valves, or piping.

Flue gas leaks. Look for black dust (soot) around sheet-metal joints. Check any part of boiler enclosure and breaching, especially in the connection to the stack.

Controls. Look for open panels, covers, and signs of rewiring on floor or bottom of panels. Check for jumper wires and locked shutoffs.

Electrical. Ensure that covers are installed on over-limit switches, temperature sensors, and controls.

Safety valves. Ensure that a safety valve is installed with full-sized discharge piping properly supported and directed to a point of safe discharge. Safety valve set pressure must be equal to or less than boiler maximum allowable working pressure. Safety valve relieving capacity must be equal to or greater than boiler output.

Fuel sources. Check for the ability to shut off the fuel source to the vessel.

Gages. Make sure temperature and pressure gages are operational and are located for proper monitoring.

Proper piping. Check for proper supports and allowance for expansion and contraction.

Operating certificate. Observe certificate noting last date of inspection and expiration date when required.

Whenever you spot a potential problem, call a National Board qualified repair organization . Note the inspection certificate number and the jurisdictional number assigned to the boiler or pressure vessel. If there is ever a problem or question related to this unit, those numbers will be needed by your jurisdiction's chief boiler inspector for identification purposes.
*Information provided by The National Board of Boiler and Pressure Vessel Inspectors and The Ohio Department of Industrial Relations, Division of Steam Engineers.

A Boiler or Water Heater Can Be Lethal

FACT: Since 1992, there have been more than 30,000 boiler and pressure vessel accidents in the United States.
FACT: Cast-iron boilers can fracture into many small and/or large pieces in an accident, sending the "shrapnel" in all directions.
FACT: When water expands into steam, it has an expansion rate of approximately 1,600 times its original volume.

DISASTER RECOVERY

Recovering a Boiler or Hot Water Heater After a Natural Disaster

by: John Hoh

When planning for natural disaster recovery, carefully take into consideration one of the most widespread and often overlooked potential dangers facing emergency personnel: boilers and water heaters.

Fact is, this equipment is found in homes, schools, factories, restaurants, churches, hospitals - just about every building in the civilized world. When damaged or left unattended, boilers and water heaters represent a serious threat to both life and property. The more emergency personnel know about what to look for and what to do, the more this very real threat can be minimized.

Boilers can produce steam or hot water, while water heaters produce only hot water. If superheated water under pressure is suddenly released to the atmosphere, it will instantly convert to steam with an expansion rate of approximately 1600 times its original volume. This means the slightest bit of water when turned into steam can have phenomenal power.

Take, for example, a hot water heater. If overheated to the point of rupture, a 30-gallon hot-water tank has enough energy to send - starting with a lift-off velocity of 85 miles per hour - an average car (2,500 pounds) to a height of nearly 125 feet. That's the equivalent of a 14 story apartment building! Such force can cause injury or death to anyone in the vicinity as well as level entire homes and businesses.

Considering the potential danger of boilers and water heaters, it is important to know what warning signs to look for in the aftermath of a natural disaster.

An overheating water heater can quickly be identified by steam or a mixture of steam and water being discharged at the safety relief valve or from an open hot water faucet. If this condition is found at the faucet, close the faucet. In both cases, immediately shut down the water heater's source of heat. Allow the water heater to cool naturally without the addition of cold water. Contact a qualified repair firm to investigate and correct the cause of the overheating before attempting to use the water heater again.

An overheating boiler may exhibit one or more of the following conditions:

1. A discharging safety relief valve.

2. Pressure and/or temperature readings above the maximum allowed for the boiler.

3. Low or no water in boilers equipped with water-level gage glasses.

4. Scorched or burning paint on the boiler skin casing.

When a water heater or boiler is overheating, the only safe intervention is to REMOVE THE HEAT SOURCE BY STOPPING THE SUPPLY OF FUEL OR AIR, and in the case of electrically heated units, to turn off the electric power to the unit.

1. Do not try to relieve the pressure.

2. Do not add water into the vessel.

3. Do not try to cool the vessel with water.

Get away from the vessel and let it cool naturally. Remember, the equipment can be a potential bomb. At this point, the best thing to do is to call a qualified repair firm. A jurisdictional authority will be able to provide a list of qualified organizations.

When recovering boilers after a flood, there are several items to keep in mind during the cleaning and restoration process.

1. Flood waters contain hazardous chemicals and bacteria, so the safety of those aiding in cleanup and inspection must be enforced.

2. Some equipment may only be repaired by the original manufacturer or its limited agents in order to maintain warranties and/or certification.

3. The combination of water and mud can adversely affect every aspect of the boiler system. A thorough check including the foundation, refractory and fire brick, drains, blow-off lines, electronic controls, electric motors, wiring, air inlets, and gas stacks should be made.

4. Waterlogged insulation will hasten external corrosion of boilers and pipes. If removal is deemed necessary, keep in mind that asbestos is still present in many boiler rooms and requires handling by specially licensed personnel. If insulation is left in place and the boiler is fired before thoroughly drying, steam can be generated within the insulation layers thereby creating the potential for explosive damage.

5. Pressure relief devices should be checked for corrosion and damage as well. Some jurisdictions require any repair work to be performed by a company holding the National Board "VR" symbol stamp. Only qualified personnel should perform disassembly or repair of a pressure relief device.

Should a boiler or pressure vessel accident occur, it is equally important to know who to call as it is to know what to do. There are more than 50 chief boiler inspectors representing jurisdictions throughout the United States and Canada who are members of the National Board of Boiler and Pressure Vessel Inspectors. Calling one of these individuals will ensure the accident scene is thoroughly investigated by someone specifically trained in boilers and pressure vessels.

Keep in mind that boiler and pressure vessel accidents are rarely caused by a natural disaster. The conditions that result, however, can have devastating consequences.

Most accidents are caused by improper maintenance or improper operation. Many jurisdictions require inspections of boilers and pressure vessels in other than residential settings. However, some boiler and pressure vessel owners do not comply with the jurisdictional regulations.

Typically, insurance companies require regular boiler or pressure vessel inspections before insuring or continuing policies on units. A certificate indicates that a unit has passed inspection. Note the unit identification number on the certificate. This will be needed by the jurisdictional official for locating and identifying the unit.

Knowing the warning signs of potential danger resulting from damaged or overheated boilers and water heaters is but one portion of an effective contingency plan. The second, and perhaps more important element is knowing who to call when spotting a potential problem and knowing what to do. The following graph is a safety checklist that should be followed whenever boilers and/or water heaters are affected by natural disaster.

John Hoh is the Assistant Director of Inspections for the National Board of Boiler and Pressure Vessel Inspectors.

return to toc

Boiler or Hot Water Heater Safety Checklist

1. Exterior shell and/or insulation. Look for indications of overheating.

2. Leaks. Look for water on the floor. Check for

water or steam escaping from any part of a pressurized system including the boiler, valves or piping.

3. Flue gas leaks. Look for black dust (soot) around sheet metal joints. Check all parts of boiler enclosure and breaching, especially in the connection of the stack.

4. Controls. Look for open panels, covers, and signs of rewiring on floor or bottom of panels. Check for jumper wires and locked shut-offs.

5. Electrical. Ensure that covers are installed on over-limit switches, temperature sensors, and controls.

6. Safety Valves. Ensure that a safety valve is installed with full-sized discharge piping properly supported and directed to a point of safe discharge. Safety valve set pressure must be equal to or less than boiler maximum allowable working pressure. Safety valve relieving capacity must be equal to or greater than boiler output.

7. Fuel sources. Check for the ability to shut off the fuel source to the vessel.

8. Gauges. Make sure temperature and pressure gauges are operational and located for proper monitoring.

9. Proper Piping. Check for proper supports and allowance for expansion and contraction.

10. Operating certificate. Observe certificate noting last date of inspection and expiration date when required.

Information provided by The National Board of Boiler and Pressure Vessel Inspectors, The Ohio Department of Industrial Relations, Division of Steam Engineers, and The Locomotive, published by Hartford Steam Boiler Inspection and Insurance Company.

Return to Main Index I Send Email to DRJ

Copyright (c) 1999 Systems Support Inc. All rights reserved. Reproduction in whole or in part in any form or medium without the express written permission of System Support Inc. is prohibited.

Page designed by David-Glen Smith

Last updated-- Jan. 15, 1999.